

Patent Claims

1. Ophthalmologic device with eye tracker unit (8) comprising a controllable illumination unit (1) and an observation system (2) arranged on separate supporting arms (3a, 3b), wherein an image recording unit (4), an optical imaging system (5) and an output unit have connections to a central control unit (6).
2. Ophthalmologic device according to claim 1, wherein the separate supporting arms (3a, 3b) of the illumination unit (1) and of the observation system (2) are swivelable independent of one another and have transmitter elements.
3. Ophthalmologic device according to at least one of the preceding claims, wherein transmitter elements are additionally arranged at the zoom system and at the magnification changer.
4. Ophthalmologic device according to at least one of the preceding claims, wherein the eye tracker unit (8) has a measurement repetition rate and an image area which detects the eye (12) to be examined until the edge of the iris, and the optical axis (15) of the eye tracker unit (8) corresponds to that of the observation system (2).
5. Ophthalmologic device according to at least one of the preceding claims, wherein the digital high-resolution camera serving as image recording unit (4) has a high image rate.
6. Ophthalmologic device according to at least one of the preceding claims, wherein the image rate of the digital high-resolution camera serving as image recording unit (4) operates synchronous with the image rate of the digital illumination unit (1).
7. Ophthalmologic device according to at least one of the preceding claims, wherein the central control unit (6) has a user interface with conventional input devices such as keyboard (9), mouse (10), trackball, joystick, or the like, and has different control modes and evaluating modes.

8. Ophthalmologic device according to at least one of the preceding claims, wherein the output unit is a monitor (7) and/or printer.
9. Ophthalmologic device according to at least one of the preceding claims, wherein the swiveling arms of the illumination unit (1) and observation device (2) have an angle transmitter and/or an actuating drive.
10. Ophthalmologic device according to at least one of the preceding claims, wherein the zoom system and the magnification changer have a transmitter element and/or an actuating drive (16).
11. Ophthalmologic device according to at least one of the preceding claims, wherein parameters of the illumination pattern are stored by the central control unit (6) and displayed in a display unit on the monitor or, by mirroring in data, in the viewer or eyepiece.
12. Method for operating an ophthalmologic device with eye tracker unit (8), wherein different illumination patterns can be generated and projected on the eye (12), and these illumination patterns are shifted in direction and amount, rotated around freely selectable reference points, can be scaled with respect to their size and line width, are freely selectable with respect to their radiating direction relative to the optical axis 15, and are held so as to be fixed at a point on the eye (12) in real time by tracking without movement.
13. Method according to claim 11, wherein different illumination patterns for identifying and marking regions of interest (ROI) (18) can be held stationary online on the eye (12) and monitor (7) and, after the relevant position parameters of the system have been stored, can be used later for finding the ROI (18) again.
14. Method according to at least one of the preceding claims, wherein additional parameters such as magnification, pattern parameters, brightness, coordinates, time, etc. can be stored in addition to the relevant position parameters for finding the ROI (18) again.
15. Method according to at least one of the preceding claims, wherein suitable scaled illumination patterns are projected on the eye (12) at variable radiating angles and the

calculation of the biometric data is carried out by triangulation while taking into account the refracting media of the eye (12).

16. Method according to at least one of the preceding claims, wherein searching of illumination patterns in digital images can be carried out by means of differential image recordings in that two or more images which are recorded in direct succession in time with a change exclusively in the illumination pattern are subtracted from one another and all interfering spatially fixed image information is accordingly eliminated.